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(54) **BISTATIC RADAR SYSTEM USING SATELLITE-BASED TRANSMITTERS WITH IONOSPHERIC COMPENSATION**

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(57) **ABSTRACT**

A system for the passive location of non-cooperating vehicles using satellite-based transmitters with ionospheric compensation. The system is a light-weight, low-cost, portable, and field-deployable station to supplement deficiencies in the National Airspace System (NAS) and homeland security surveillance networks. The system accommodates observation modes having long "integration" times that potentially are greater than one second. The system utilizes satellite-based transmitters as illuminators. The passive system measures two radio waves (e.g., a direct path and an illumination plus reflection path), and applies time-difference techniques that can compensate for the ionosphere since the ionospheric delay is applied to both signals. This also has the advantage of compensating for other uncertainties such as exist in the position of the satellite.